LA-UR-21-27336
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Title: CANARY

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Intended for: Web

Issued: 2021-07-27

Los Alamos NATIONAL LABORATORY

Tech Snapshot

Published: Jul 26, 2021

CANARY

Small, portable or wearable air sampling device.

SUMMARY

CANARY is a wearable environmental sampling device that is small, lightweight, and low-power. CANARY integrates a novel mechanism that uses magnets rather than powered pumps to mimic human breathing. In its current form, CANARY breathes, but sensor integration can easily turn this into a standalone device for use in airborne detection of chemicals, biologicals, viruses, etc. CANARY has a small footprint and requires little power to operate enabling it to be used in various environments. Los Alamos researcher have developed a working prototype of the air intake system and are seeking licensees for the current air intake, validation outside the lab, or further development to integrate biosensors as desired.

MARKET APPLICATION

The personal health monitoring industry is experiencing explosive 25% CAGR growth and is expected to be worth $71Bn by 2022. This Los Alamos technology, integrated into a personal bio-surveillance device, could make it possible to more effectively detect atmospheric chemicals such as diagnostic particles on a patient's breath, or noxious chemicals in an industrial environment. An immediate fit for this technology is in environmental sampling to be coupled with a secondary analytical device that performs atmospheric analysis. CANARY has been designed to integrate a sensor for applications in personal security or warfighter safety. This flexibility provides benefits over purpose-built technologies currently on the market.

BENEFITS

CANARY can take in air similarly to a human lung and can easily be coupled to a biosensor for detection capabilities

- Continuous or discrete sampling
- Samples the environment – aerosols, gases
- Low-power needs
- Able to use with any miniature biosensors – viral, gas, environmental, bacterial, etc.
- Small, light, and wearable
- Battery powered
- Amenable to low-cost material use

CONTACT

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WHY WE ARE BUILDING CANARY

CANARY was originally conceived for various applications in defense, including uses to ensure safety of deployed warfighters, and has potential for application in a variety of other industries. CANARY is a next generation air-intake device with the potential to integrate sensors that can be miniaturized for the use in a multitude of downstream applications.

WHAT'S BEHIND OUR TECHNOLOGY

CANARY was originally designed as part of the of the Los Alamos lung-on-a-chip organ development. The unique combination of materials, magnets, and a porous membrane enables CANARY to sample our environment in ways that more closely mimic human breathing.

OUR COMPETITIVE ADVANTAGES

CANARY is innovative in its novel breathing mechanism that uses magnets rather than powered pumps. The advantages of CANARY are the diminutive size and low power use of the device in comparison to other product offerings.

OUR TECHNOLOGY STATUS

Los Alamos researchers have developed a working prototype of the air intake device inside the Laboratory. Los Alamos is seeking a licensing partner for the air intake device to commercialize or to integrate it into other products. For the Laboratory is also interested in partnering through a CRADA to co-develop a sensor integrated version of CANARY for the personal, drone-based, or security markets.

PUBLICATIONS AND IP

CANARY is patent-pending

National Nuclear Security Administration